most important and significant results are claimed for the Lister method. In opening a cold abscess, for example, the parts divided by the knife may be entirely covered from the spray by the escaping pus, and in any case they are such as are daily divided without a thought of septicæmic complications; and the same is measurably true of operations for the drainage of joints or for the removal of loose cartilages from them. In such cases it is highly improbable that the spray exerts any direct action upon the wound, and the absence of putrefaction must be due to the purity of the instruments and to the continuous protection afforded subsequently by the dressings.

No one will deny that carbolic acid has an effect upon raw tissues; the change of colour and the copious secretion that follow its application to a wound have been observed by all; but if this effect is desired, it can be obtained without the aid of the spray by simply washing the wound with a strong solution; or, if it must be applied in the form of a spray, a small hand apparatus directed solely upon the wound may be advantageously substituted for the steam atomizer and its volume of mist.

To what extent this topical action of carbolic acid is beneficial, and therefore to be desired, or in what degree carbolic acid is superior or inferior to other surgical antiseptics, I do not propose here to inquire. Those questions must be judged by clinical results, and experience is rapidly accumulating upon them. I have sought to show only that the spray does not prevent putrefaction, and that consequently the theory upon which its use has been hitherto advocated is not founded upon fact.

ARTICLE VII.

CHLORAL HYDRATE AND CAMPHOR IN TOXIC AND THERAPEUTIC DOSES.

By D. B. SIMMONS, M.D., Surgeon to, and Director of, Ken Hospital, Yokohama, Japan.

THE use of the syrup-like liquid, formed by rubbing up equal parts of chloral hydrate and camphor in a mortar, as a local application in neuralgia, is now generally known. The effect of this mixture on the system, however, either in therapeutic or poisonous doses, I have never seen reported. The following history of a case in which two drachms of this mixture were taken may therefore possess some interest:—

Mrs. C., æt. 40, suffering from facial neuralgia, entered the hospital June 10. On the same evening she swallowed two drachms of the chloral and camphor mixture, supposing it to be a sleeping draught which had been sent up at the same time. Immediately she began to suffer from an intense heat and burning in the throat and stomach. On the arrival of my assistant at her bedside, not more than fifteen minutes later, the patient was already unconscious, her extremities cold and flaccid, pulse slow and feeble. A large dose of ipecacuanha, being at hand, was almost immediately given, which had the effect of relieving the stomach of a portion of its contents, with some of the medicine—how much it is difficult to say. The vomiting continued at intervals during the night and following day, during which time a considerable quantity of blood was thrown up. Free salivation and an excessive discharge of mucus from the nose set in almost immediately, and continued for some days. From eight to ten dark, coffee-ground looking stools, mixed with mucus, were passed during the next twenty-four hours, but were reduced to half that number on the day following. At the end of thirty-six hours the skin had become quite warm, and the respiration, though a little slower than normal, was otherwise easy and regular. The condition of the patient, in a word, was that of a *prolonged narcotism*, from which she could be partially aroused only, so as to take water, liquid nourishment, and medicine, which she swallowed readily, probably because of the parched condition of her mouth. Occasionally she would mutter incoherent sentences, half in delirium, half in expression of her wants. This continued for four days, when she awoke as if from a dream, asked, "What had been the matter?" and then sunk back again into her former condition. From this time, however, her lucid moments became more frequent and longer, though occasional periods of mental confusion did not entirely disappear for nine or ten days. Control over movements of her extremities, which was almost completely lost during the first four or five days, by degrees returned; and on the tenth after being prostrated by the poison, she was able to walk about the room. Recovery was complete at the end of two weeks. Little was done in the way of medication.

The therapeutic use of the above mixture was suggested by the prolonged narcotism observed in the case already detailed, in which a poisonous dose had been taken. Our first trial of it was in a case of periodical mania in an inmate of the insane department of the hospital.

The maniacal attacks would occur every three or four weeks, and last from six to eight days. At these times the patient would become very violent, and for days and nights would not be quiet for a moment, often beating his head against the walls of his cell with apparently no small risk of serious injury to his skull. The ordinary routine of narcotics, including chloral, morphia, hyoscyamia, etc., had been frequently tried to no purpose. The paroxysm in which we decided to try the hydrate of chloral and camphor had already lasted three days, and was running its usual course in spite of ordinary means to prevent it. At 11 A. M. twenty drops of the chloral and camphor mixture were given in half an ounce of gum water. In fifteen minutes he became more quiet; in fifteen more lay down, and slept for two hours. On awaking he was quiet; towards evening, however, he began to show signs of his former restlessness, when fifteen drops of the mixture were administered. Again he fell into a quiet sleep, from which he awoke a few hours afterwards in the condition usual to him in the intervals of the paroxysms.

We had occasion to use the remedy several times in this case while it was under our charge, and always with the same happy result of cutting short a period of several days of violent mania.

We have on other occasions found this mixture to accomplish, as a sedative, what others seemed powerless to do. Again, however, its effects have not been so striking. We believe it especially useful in cases, as above detailed, where violent maniacal attacks are suffered from. We see no reason why it ought not to prove of service in some other serious diseases, such as hydrophobia, tetanus, and, as my colleague, Dr. Eldridge, suggested to me, in delirium tremens. The drugs, it is true, are powerful nervous sedatives alone, but it appears some additional strength is developed by their union, as ten grains of camphor or of chloral hydrate, separately, would have, we all know, about as much effect on a maniac as so much water.

ARTICLE VIII.

ON FRACTURES OF THE CRANIAL BONES.

By John A. Lidell, A.M., M.D., of New York, late Surgeon to Bellevue Hospital, Inspector of the Medical and Hospital Department of the Army of the Potomac, etc. etc.

Fractures of the skull are among the most difficult and important objects of surgery. They are attended with very great fatality. Of 117 cases treated at the New York Hospital 96 died, and only 21 recovered (*Lente*). Of 230 cases of gunshot fracture of the cranium, which occurred in the British Army in the Crimea from April 1, 1855, to the end of the war, 170, or 73.9 per centum, died (*Med. and Surg. Hist. of British Army in Crimea, etc.*, vol. ii. p. 286). Of 4022 cases of gunshot fracture of the skull, which happened during our war of the rebellion, 2559, or 63.6 per centum, proved fatal (*Med. and Surg. Hist. of the War of the Rebellion*, Surgical Vol., Part 1st, p. 307). And of 105 cases of cranial fracture caused by falls and blows on the head, and by miscellaneous injuries other than gunshot and bayonet wounds, which also happened during our war of the rebellion, 57, or 54.28 per centum, likewise proved fatal (*Ibid.* p. 68). Moreover, fractures of the cranial bones constitute a theme of great interest to every practical surgeon, because their treatment is less clearly settled and defined than that of most other forms of injury, although they have been attentively studied by the most gifted surgeons in every age from the time of Hippocrates until the present day. Indeed, directly opposite views are entertained and expressed by prominent surgeons of our own time, concerning the utility of the operation of trephining, and of the various procedures for elevating depressed fragments in cases of cranial fracture; likewise concerning the employment of bloodletting, mercury, antimony, and other depressing remedies in treating the inflammatory complications and sequelæ of such fractures. Whoever, then, shall relate his personal observations and researches on these important subjects in a clear, impartial, and concise manner, may possibly instruct as well as amuse the thoughtful reader.